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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/786,754

02/25/2004

Tsuyoshi Okutani

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EXAMINER

WANG, KENT F

ART UNIT

PAPER NUMBER

2622

MAIL DATE

DELIVERY MODE

02/04/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/786,754	Applicant(s) OKUTANI ET AL.	
	Examiner KENT WANG	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 17 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-15 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-15 and 17 are pending and claims 1-10 are withdrawn from consideration.

Response to Arguments

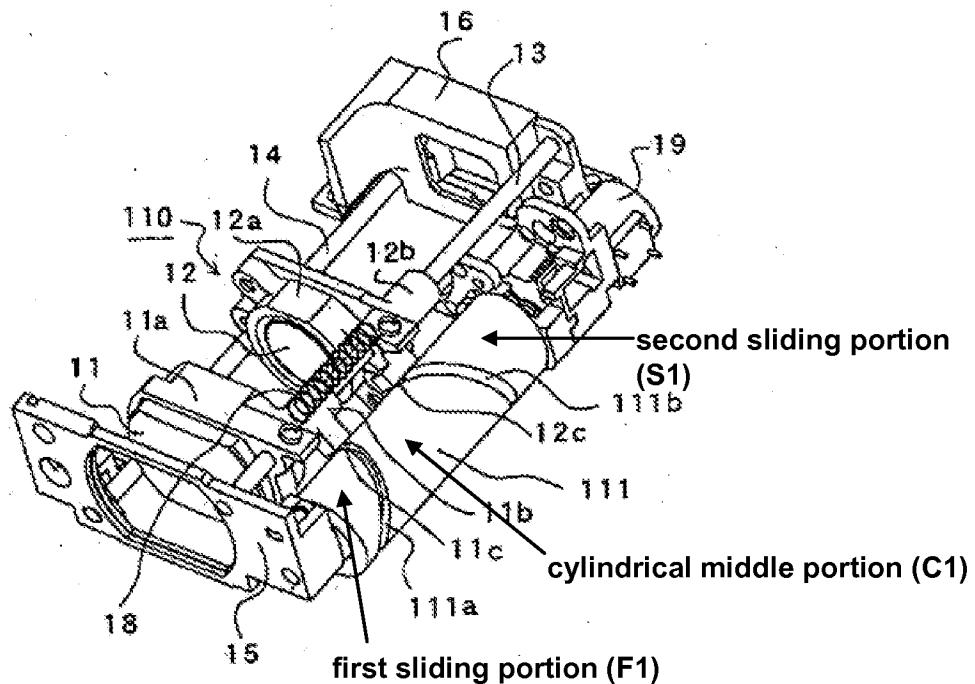
2. Applicant's arguments with respect to claims 11-15 and 17 have been considered but are moot in view of the interpretation of the original cited references.
3. Applicant's arguments filed 12/22/2008 have been fully considered but they are not persuasive. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e. *"the cam for zooming is configured such that the cam grooves are adjustable"*) are not recited in the rejected claim 11. The applicant is reminded that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant asserts on pages 13-16 that the Disclosed Prior Art does not disclose (i) a cam base body having a generally cylindrical middle portion and a first and second sliding portions formed at both ends of said middle portion and said sliding portions having a smaller diameter than that of said middle portion, (ii) a first stepped portion forming an approximately vertical plane between said first sliding portion and said middle portion thereby defining a cam plane of the first spiral groove, and (iii) a second stepped portion thereby forming an approximately vertical plane between said second sliding portion and said

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middle portion thereby defining a cam plane of the second spiral cam groove, as noted in claim 11.

The examiner understands the applicant's arguments but respectfully disagrees with the applicant's assessment. In response to applicant's argument, it is noted that Fig 46 inherently shows the cam for zooming 111 has a cam base body having a generally cylindrical middle portion (C1) and a first sliding portion (S1) and second sliding portion (F1) formed at both ends of said middle portion. Fig 46 further inherently shows the a first cam groove 111a as a first stepped portion and a second cam groove 111b as a second stepped portion (please see figure below). Applicant's arguments are not convincing.

FIG.46

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In response to applicant's argument on page 14 that the Examiner has failed to identify in the Disclosed Prior Art the claimed "first stepped portion..." and "second stepped portion ...", it is noted that Fig 46 inherently shows the a first cam groove 111a function as a first stepped portion and a second cam groove 111b as a second stepped portion (please see figure above).

Applicant's argument of the first and second cam frames statement set forth on pages 15-16 of Applicant's response is acknowledged. In response, the paragraphs [0025]-[0029] disclose a first lens frame as a first cam frame having another cam plane confronting the first cam plane as one cam plane of the first cam groove and a second lens frame as a second cam frame having another cam plane confronting the second cam plane as one cam plane of the second cam groove and Fig 45 shows both lens frames (11a and 11b) provided non-rotatably on the sliding portion so as to be able to slide. Thus, applicant's arguments are not convincing.

4. The applicant argues that the Disclosed Prior Art fails to disclose a "rotational axis rod having gears at both ends thereof" and "the gear at one end of the rotational axis rod" as in claim 15. The applicant also argues that the Disclosed Prior Art fails to disclose "a cam body driven by the first rate reducing gears, the cam body having at least one spiral cam groove formed by confronting cam planes". The examiner understands the applicant's arguments but respectfully disagrees with the applicant's assessment. In response to applicant's argument, it is noted that the Disclosed Prior Art inherently discloses that the rate reducing device has a lot of rate reducing gears besides a first rate reducing gear which engages a motor pinion, as a last rate reducing gear engages a gear provided to the came for zooming and the cam body

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having at least one spiral cam groove formed by confronting cam planes ([0018]-[0030]).

Therefore, the rejections are still deemed proper and have been maintained.

5. With respect to the dependent claims, 12-14 and 17, the examiner believes his office action of 08/26/2008 is proper and accurate. Applicant's arguments are not convincing.

Claim Rejections - 35 USC § 102

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
7. Claims 11-15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicant Admitted Prior Art (AAPA) (US 2004/0233303).

Regarding claim 11, AAPA discloses a cam apparatus (a driving mechanism for zooming 110, Fig 46) having first and second spiral cam grooves (a first cam groove 111a and a second cam groove 111b, Fig 46) for moving an object with a cam-driving force which is generated by cam-driving a cam groove inserting member (a protruded cam pin which is a cam groove inserting member, 11c, 12c, Fig 46) inserted in each cam groove (111a, 111b), a cam apparatus comprising:

- a cam base body (a cam for zooming 111, Fig 46) having a generally cylindrical middle portion and first and second sliding portions formed at both ends of said middle portion (Fig 46 inherently shows the cam for zooming 111 has three portions divided by 111a and 111b, as the cam for zooming 111 has a cam base body having a generally cylindrical middle portion (C1) and a first sliding portion

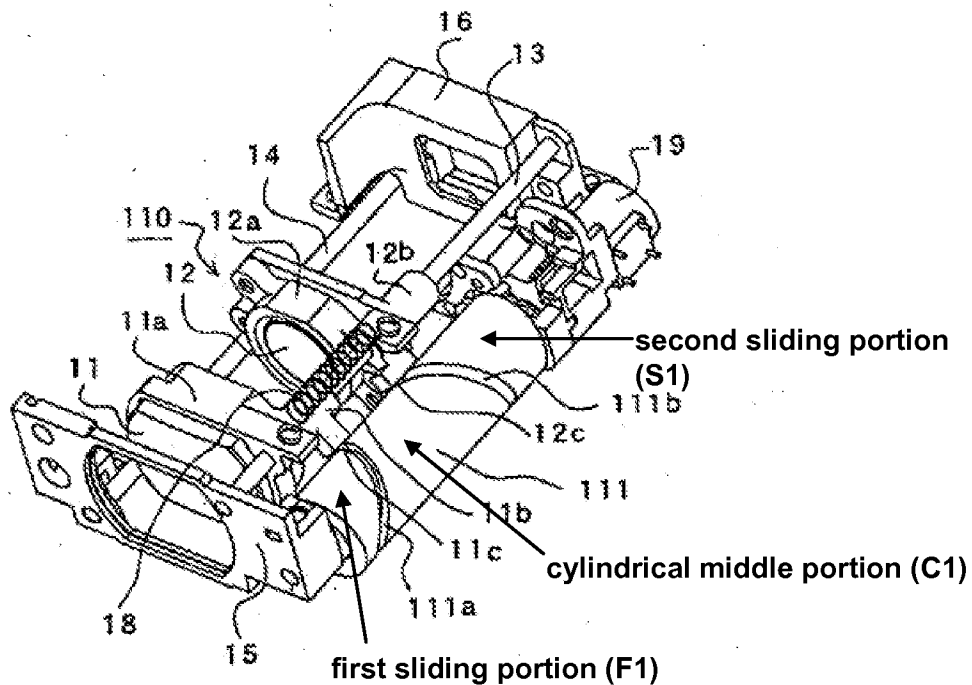
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(S1) and second sliding portion (F1) formed at both ends of said middle portion, see Fig 46 below on next page) and said sliding portions having a smaller diameter than that of said middle portion, said cam base body further comprising a first stepped portion forming an approximately vertical plane between said first sliding portion and said middle portion thereby defining a cam plane of the first spiral cam groove (a first cam groove 111a) and a second stepped portion thereby forming an approximately vertical plane between said second sliding portion and said middle portion thereby defining a cam plane of the second spiral cam groove (a second cam groove 111b) ([0029]-[0030]);

- a first cam frame (first lens frame 11a, Figs 46-47) having another cam plane confronting the one cam plane (first cam plane 17a, Fig 45) of the first cam groove (a first cam groove 111a) and provided non-rotatably so as to be able to slide on one sliding portion ([0025]-[0029]);
- a second cam frame (second lens frame 11b, Figs 46-47) having another cam plane (second cam plane 17b, Fig 45) confronting the one cam plane (second cam plane 17b, Fig 45) of the second cam groove (a second cam groove 111b) and provided non-rotatably on the second sliding portion so as to be able to slide ([0025]-[0029]);
- a forcing device (a coil spring 18, Figs 46, 47) which connect the first and the second cam frames to the cam base body (a cam for zooming 111, Figs 46, 47) ([0029]); and

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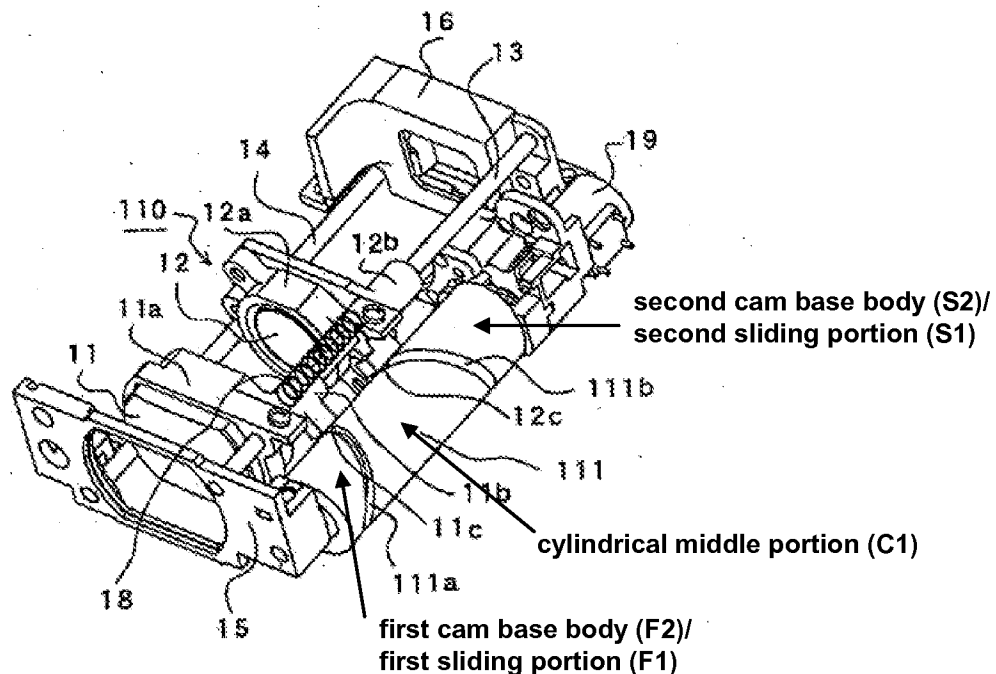
- cam groove inserting members (a protruded cam pin, 11c, 12c), each of which is received within one of the first and second spiral grooves (a first and second cam groove 111a and 111b) ([0029]).

FIG.46

Regarding claim 12, AAPA discloses said cam based body (a cam for zooming 111, Fig 46) further comprises a first cam base body portion (F2, Figure below) having said first sliding portion (F2) at one end thereof and a second cam base body portion (S2) having said second sliding portion (S1) at one end thereof, said first cam base body portion (F2), and said second cam base body portion (S2) being connected to each other at ends opposite of said first (F1) and second sliding portions (S1) such that further comprising an adjusting

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mechanism (a coil spring 18) which adjusts a distance between said cam plane of said first spiral groove (a first cam groove 111a) and said cam plane of said second spiral groove (a second cam groove 111b) may be adjusted in an axial direction the confronting cam planes of each of the first and the second cam grooves (the pressing function of the cam pin 11c or 12c is derived from a tensile force of a coil spring 18 which is fastened to tighten between a lens frame 11a and 12a. That is, the coil spring 18 is a spring for tensile force, one end of which is fixed to the lens frame 11a, another end of which to the lens frame 12a) (see Figure below).

FIG.46

Regarding claim 13, AAPA discloses at least one of the confronting cam planes (a first cam plane 17a and a second cam plane 17b, Figs 45-46) of at least one of the first and the second spiral grooves (a first cam groove 111a and a second cam groove 111b, Fig 46) is sloped, and

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wherein the slope cam plane (a first cam plane 17a and a second cam plane 17b) gives a cam driving force along a direction of the rotational axis (cam for zooming 17) of the cam groove (111a, 111b) and pushing force along a direction orthogonal to the direction of the rotational axis (cam for zooming 17) of the cam groove to the cam groove inserting member (a protruded cam pin, a cam groove inserting member, 11c and 12c) ([0029]-[0030]).

Regarding claim 14, AAPA discloses the forcing device (a coil spring 18, Figs 45-47) is fastened at one end to the first cam frame (a lens frame 11a) and another end to the second cam frame (a lens frame 12a) and the forcing device presses the first and the second cam frame (11a, 12a) to the cam base body along one direction (cam for zooming 17) ([0022]-[0026]).

As for claim 15, AAPA disclosed optical zoom mechanism (a driving mechanism for zooming 10, Fig 45) comprising:

- a zoom lens (lens group 11, 12, Fig 45, [0022]);
- a holding frame (a lens frame 11a, Fig 45) which holds the zoom lens ([0023]);
- a rotational axis rod (the cam for zooming 17 is rotated, Fig 45) having gears (rate reducing device) at the both end thereof (Fig 45) ([0019]-[0020] and [0027]);
- a first group of rate reducing gears which engage the gear at one end of the rotational axis rod (the rate reducing device has a lot of rate reducing gears besides a first rate reducing gear which engages a motor pinion) ([0020]);
- a second group of rate reducing gears which engage the gear at another end of the rotational axis rod (a last rate reducing gear engages a gear provided to the came for zooming) ([0020]);

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- a motor (a zooming motor 19, Fig 45) which drives the second group of rate reducing gear (the cam for zooming 17 is rotated through a rate reducing device by a motor 19, Fig 45) ([0027]);
- and a cam body (cam for zooming 17, Fig 45) driven by the first rate reducing gears gear, the cam body having at least on spiral cam groove (first and second cam groove 111a, 111b, Fig 46) formed by the confronting cam planes (first and second cam plane 17a and 17b, Fig 45) ([0025]); and
- a cam groove inserting member (boss 11b has a protruded cam pin, a cam groove inserting member, 11c or 12c, Fig 45) provided on the holding frame (11a) ([0025]),
- wherein the zoom lens (lens group 11 and 12, Fig 45) is driven by inserting the cam groove inserting member (11c, 12c) into the spiral cam groove (111a, 111b) of the cam body, and whereby zooming is performed by moving the holding frame with the cam body (a zoom motor is disposed forward or backward to the cam for zooming and rate reducing device is dispose between the motor and the cam so as to reduce a motor out put with the rate reducing device, transfer to the cam and rotate the cam) ([0019]).

Regarding claim 17, the limitations of claim 15 are taught above, AAPA discloses a cam body further comprising:

- a cam base body (a cam for zooming 111, Fig 46) having a generally cylindrical middle portion and first and second sliding portions formed at both ends of said middle portion (Fig 46 inherently shows the cam for zooming 111 has three

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portions divided by 111a and 111b) and said sliding portions having a smaller diameter than that of said middle portion, said cam base body further comprising a first stepped portion forming an approximately vertical plane between said first sliding portion and said middle portion thereby defining a cam plane of the first spiral cam groove (a first cam groove 111a) and a second stepped portion thereby forming an approximately vertical plane between said second sliding portion and said middle portion thereby defining a cam plane of the second spiral cam groove (a second cam groove 111b) (see Figure on next page, [0029]-[0030]);

- a first cam frame (first lens frame 11a, Figs 46-47) having another cam plane confronting the one cam plane (first cam plane 17a, Fig 45) of the first cam groove (a first cam groove 111a) and provided non-rotatably so as to be able to slide on one sliding portion ([0025]-[0029]);
- a second cam frame (second lens frame 11b, Figs 46-47) having another cam plane (second cam plane 17b, Fig 45) confronting the one cam plane (second cam plane 17b, Fig 45) of the second cam groove (a second cam groove 111b) and provided non-rotatably on the second sliding portion so as to be able to slide ([0025]-[0029]); and
- a forcing device (a coil spring 18, Figs 46, 47) which connect the first and the second cam frames to the cam base body (a cam for zooming 111, Figs 46, 47) ([0029]).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Yamazaki et al. (US 4,993,815) provides a zoom lens-barrel assembly includes a differential cam frame which is moved in an axial direction together with a movable barrel and is rotated around an optical axis. Lens holding frames are cam-linked with the differential cam frame;
- Filipovick et al. (US 3,744,884) disclose a photographic camera for adjustably supporting components of a variable magnification afocal or zoom unit for an objective lens of the camera with simultaneous differential movement of the lens components along the optical axis of the camera;
- Atsuta et al. (US 4,834,514) provides a zoom lens mount assembly permitting its inner diameter to be dimensioned as large as possible without making the lens mount assembly bulky as a whole; and
- Nomura et al. (US 2001/0017662) discloses a lens frame guiding mechanism of a zoom lens.

9. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory

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period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kent Wang whose telephone number is 571-270-1703. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-270-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://portal.uspto.gov/external/portal/pair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tuan V Ho/

Primary Examiner, Art Unit 2622

KW

30 January 2009